

LISTE DE SEQUENCES

<110> AVENTIS PHARMA

<120> NUCLEIC ACIDS OF THE HUMAN ABCA5, ABCA6, ABCA9, ABCA10 GENES,
VECTORS CONTAINING SUCH NUCLEIC ACIDS AND USES THEREOF

<130> ABCA5, 6, 9, 10

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<141> 2001-12-07

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<170> PatentIn Ver. 2.1

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 Ile Ser Met Met His Pro Asn Lys Lys Tyr Glu Glu Val Pro Asn Ile
 50 55 60
 Glu Leu Asn Pro Met Asp Lys Phe Thr Leu Ser Asn Leu Ile Leu Gly
 65 70 75 80
 Tyr Thr Pro Val Thr Asn Ile Thr Ser Ser Ile Met Gln Lys Val Ser
 85 90 95
 Thr Asp His Leu Pro Asp Val Ile Ile Thr Glu Glu Tyr Thr Asn Glu
 100 105 110
 Lys Glu Met Leu Thr Ser Ser Leu Ser Lys Pro Ser Asn Phe Val Gly
 115 120 125
 Val Val Phe Lys Asp Ser Met Ser Tyr Glu Leu Arg Phe Phe Pro Asp
 130 135 140
 Met Ile Pro Val Ser Ser Ile Tyr Met Asp Ser Arg Ala Gly Cys Ser
 145 150 155 160
 Lys Ser Cys Glu Ala Ala Gln Tyr Trp Ser Ser Gly Phe Thr Val Leu
 165 170 175
 Gln Ala Ser Ile Asp Ala Ala Ile Ile Gln Leu Lys Thr Asn Val Ser
 180 185 190
 Leu Trp Lys Glu Leu Glu Ser Thr Lys Ala Val Ile Met Gly Glu Thr
 195 200 205

Ala Val Val Glu Ile Asp Thr Phe Pro Arg Gly Val Ile Leu Ile Tyr
210 215 220
Leu Val Ile Ala Phe Ser Pro Phe Gly Tyr Phe Leu Ala Ile His Ile
225 230 235 240
Val Ala Glu Lys Glu Lys Lys Ile Lys Glu Phe Leu Lys Ile Met Gly
245 250 255
Leu His Asp Thr Ala Phe Trp Leu Ser Trp Val Leu Leu Tyr Thr Ser
260 265 270
Leu Ile Phe Leu Met Ser Leu Leu Met Ala Val Ile Ala Thr Ala Ser
275 280 285
Leu Leu Phe Pro Gln Ser Ser Ser Ile Val Ile Phe Leu Leu Phe Phe
290 295 300
Leu Tyr Gly Leu Ser Ser Val Phe Phe Ala Leu Met Leu Thr Pro Leu
305 310 315 320
Phe Lys Lys Ser Lys His Val Gly Ile Val Glu Phe Phe Val Thr Val
325 330 335
Ala Phe Gly Phe Ile Gly Leu Met Ile Ile Leu Ile Glu Ser Phe Pro
340 345 350
Lys Ser Leu Val Trp Leu Phe Ser Pro Phe Cys His Cys Thr Phe Val
355 360 365
Ile Gly Ile Ala Gln Val Met His Leu Glu Asp Phe Asn Glu Gly Ala
370 375 380
Ser Phe Ser Asn Leu Thr Ala Gly Pro Tyr Pro Leu Ile Ile Thr Ile
385 390 395 400
Ile Met Leu Thr Leu Asn Ser Ile Phe Tyr Val Leu Leu Ala Val Tyr
405 410 415
Leu Asp Gln Val Ile Pro Gly Glu Phe Gly Leu Arg Arg Ser Ser Leu
420 425 430
Tyr Phe Leu Lys Pro Ser Tyr Trp Ser Lys Ser Lys Arg Asn Tyr Glu
435 440 445
Glu Leu Ser Glu Gly Asn Val Asn Gly Asn Ile Ser Phe Ser Glu Ile
450 455 460
Ile Glu Pro Val Ser Ser Glu Phe Val Gly Lys Glu Ala Ile Arg Ile
465 470 475 480
Ser Gly Ile Gln Lys Thr Tyr Arg Lys Lys Gly Glu Asn Val Glu Ala
485 490 495

Leu	Arg	Asn	Leu	Ser	Phe	Asp	Ile	Tyr	Glu	Gly	Gln	Ile	Thr	Ala	Leu	
			500					505					510			
Leu	Gly	His	Ser	Gly	Thr	Gly	Lys	Ser	Thr	Leu	Met	Asn	Ile	Leu	Cys	
		515					520					525				
Gly	Leu	Cys	Pro	Pro	Ser	Asp	Gly	Phe	Ala	Ser	Ile	Tyr	Gly	His	Arg	
	530					535					540					
Val	Ser	Glu	Ile	Asp	Glu	Met	Phe	Glu	Ala	Arg	Lys	Met	Ile	Gly	Ile	
545					550					555					560	
Cys	Pro	Gln	Leu	Asp	Ile	His	Phe	Asp	Val	Leu	Thr	Val	Glu	Glu	Asn	
				565					570					575		
Leu	Ser	Ile	Leu	Ala	Ser	Ile	Lys	Gly	Ile	Pro	Ala	Asn	Asn	Ile	Ile	
			580					585					590			
Gln	Glu	Val	Gln	Lys	Val	Leu	Leu	Asp	Leu	Asp	Met	Gln	Thr	Ile	Lys	
		595					600					605				
Asp	Asn	Gln	Ala	Lys	Lys	Leu	Ser	Gly	Gly	Gln	Lys	Arg	Lys	Leu	Ser	
	610					615					620					
Leu	Gly	Ile	Ala	Val	Leu	Gly	Asn	Pro	Lys	Ile	Leu	Leu	Leu	Asp	Glu	
625					630					635					640	
Pro	Thr	Ala	Gly	Met	Asp	Pro	Cys	Ser	Arg	His	Ile	Val	Trp	Asn	Leu	
				645					650					655		
Leu	Lys	Tyr	Arg	Lys	Ala	Asn	Arg	Val	Thr	Val	Phe	Ser	Thr	His	Phe	
			660					665					670			
Met	Asp	Glu	Ala	Asp	Ile	Leu	Ala	Asp	Arg	Lys	Ala	Val	Ile	Ser	Gln	
		675					680					685				
Gly	Met	Leu	Lys	Cys	Val	Gly	Ser	Ser	Met	Phe	Leu	Lys	Ser	Lys	Trp	
	690					695					700					
Gly	Ile	Gly	Tyr	Arg	Leu	Ser	Met	Tyr	Ile	Asp	Lys	Tyr	Cys	Ala	Thr	
705					710					715					720	
Glu	Ser	Leu	Ser	Ser	Leu	Val	Lys	Gln	His	Ile	Pro	Gly	Ala	Thr	Leu	
				725					730					735		
Leu	Gln	Gln	Asn	Asp	Gln	Gln	Leu	Val	Tyr	Ser	Leu	Pro	Phe	Lys	Asp	
			740					745					750			
Met	Asp	Lys	Phe	Ser	Gly	Leu	Phe	Ser	Ala	Leu	Asp	Ser	His	Ser	Asn	
		755					760					765				
Leu	Gly	Val	Ile	Ser	Tyr	Gly	Val	Ser	Met	Thr	Thr	Leu	Glu	Asp	Val	
								19								

Ile Leu Val Gly Asp Ile Glu Pro Thr Ser Gly Gln Val Phe Leu Gly
1345 1350 1355 1360

Asp Tyr Ser Ser Glu Thr Ser Glu Asp Asp Asp Ser Leu Lys Cys Met
1365 1370 1375

Gly Tyr Cys Pro Gln Ile Asn Pro Leu Trp Pro Asp Thr Thr Leu Gln
1380 1385 1390

Glu His Phe Glu Ile Tyr Gly Ala Val Lys Gly Met Ser Ala Ser Asp
1395 1400 1405

Met Lys Glu Val Ile Ser Arg Ile Thr His Ala Leu Asp Leu Lys Glu
1410 1415 1420

His Leu Gln Lys Thr Val Lys Lys Leu Pro Ala Gly Ile Lys Arg Lys
1425 1430 1435 1440

Leu Cys Phe Ala Leu Ser Met Leu Gly Asn Pro Gln Ile Thr Leu Leu
1445 1450 1455

Asp Glu Pro Ser Thr Gly Met Asp Pro Lys Ala Lys Gln His Met Trp
1460 1465 1470

Arg Ala Ile Arg Thr Ala Phe Lys Asn Arg Lys Arg Ala Ala Ile Leu
1475 1480 1485

Thr Thr His Tyr Met Glu Glu Ala Glu Ala Val Cys Asp Arg Val Ala
1490 1495 1500

Ile Met Val Ser Gly Gln Leu Arg Cys Ile Gly Thr Val Gln His Leu
1505 1510 1515 1520

Lys Ser Lys Phe Gly Lys Gly Tyr Phe Leu Glu Ile Lys Leu Lys Asp
1525 1530 1535

Trp Ile Glu Asn Leu Glu Val Asp Arg Leu Gln Arg Glu Ile Gln Tyr
1540 1545 1550

Ile Phe Pro Asn Ala Ser Arg Gln Glu Ser Phe Ser Ser Ile Leu Ala
1555 1560 1565

Tyr Lys Ile Pro Lys Glu Asp Val Gln Ser Leu Ser Gln Ser Phe Phe
1570 1575 1580

Lys Leu Glu Glu Ala Lys His Ala Phe Ala Ile Glu Glu Tyr Ser Phe
1585 1590 1595 1600

Ser Gln Ala Thr Leu Glu Gln Val Phe Val Glu Leu Thr Lys Glu Gln
1605 1610 1615

Glu Glu Glu Asp Asn Ser Cys Gly Thr Leu Asn Ser Thr Leu Trp Trp
22

1620

1625

1630

Glu Arg Thr Gln Glu Asp Arg Val Val Phe
1635 1640

<210> 6

<211> 1617

<212> PRT

<213> Homo sapiens

<400> 6

Met Asn Met Lys Gln Lys Ser Val Tyr Gln Gln Thr Lys Ala Leu Leu
1 5 10 15
Cys Lys Asn Phe Leu Lys Lys Trp Arg Met Lys Arg Glu Ser Leu Leu
20 25 30
Glu Trp Gly Leu Ser Ile Leu Leu Gly Leu Cys Ile Ala Leu Phe Ser
35 40 45
Ser Ser Met Arg Asn Val Gln Phe Pro Gly Met Ala Pro Gln Asn Leu
50 55 60
Gly Arg Val Asp Lys Phe Asn Ser Ser Ser Leu Met Val Val Tyr Thr
65 70 75 80
Pro Ile Ser Asn Leu Thr Gln Gln Ile Met Asn Lys Thr Ala Leu Ala
85 90 95
Pro Leu Leu Lys Gly Thr Ser Val Ile Gly Ala Pro Asn Lys Thr His
100 105 110
Met Asp Glu Ile Leu Leu Glu Asn Leu Pro Tyr Ala Met Gly Ile Ile
115 120 125
Phe Asn Glu Thr Phe Ser Tyr Lys Leu Ile Phe Phe Gln Gly Tyr Asn
130 135 140
Ser Pro Leu Trp Lys Glu Asp Phe Ser Ala His Cys Trp Asp Gly Tyr
145 150 155 160
Gly Glu Phe Ser Cys Thr Leu Thr Lys Tyr Trp Asn Arg Gly Phe Val
165 170 175
Ala Leu Gln Thr Ala Ile Asn Thr Ala Ile Ile Glu Ile Thr Thr Asn
180 185 190
His Pro Val Met Glu Glu Leu Met Ser Val Thr Ala Ile Thr Met Lys
195 200 205
Thr Leu Pro Phe Ile Thr Lys Asn Leu Leu His Asn Glu Met Phe Ile
23

210					215					220					
Leu 225	Phe	Phe	Leu	Leu	His 230	Phe	Ser	Pro	Leu	Val 235	Tyr	Phe	Ile	Ser	Leu 240
Asn	Val	Thr	Lys	Glu 245	Arg	Lys	Lys	Ser	Lys 250	Asn	Leu	Met	Lys	Met 255	Met
Gly	Leu	Gln	Asp 260	Ser	Ala	Phe	Trp	Leu 265	Ser	Trp	Gly	Leu	Ile 270	Tyr	Ala
Gly	Phe	Ile 275	Phe	Ile	Ile	Ser	Ile 280	Phe	Ile	Thr	Ile	Ile 285	Ile	Thr	Phe
Thr	Gln 290	Ile	Ile	Val	Met	Thr 295	Gly	Phe	Met	Val	Ile 300	Phe	Ile	Leu	Phe
Phe 305	Leu	Tyr	Gly	Leu	Ser 310	Leu	Val	Ala	Leu	Val 315	Phe	Leu	Met	Ser	Val 320
Leu	Leu	Lys	Lys	Ala 325	Val	Leu	Thr	Asn	Leu 330	Val	Val	Phe	Leu	Leu 335	Thr
Leu	Phe	Trp	Gly 340	Cys	Leu	Gly	Phe	Thr 345	Val	Phe	Tyr	Glu	Gln 350	Leu	Pro
Ser	Ser	Leu 355	Glu	Trp	Ile	Leu	Asn 360	Ile	Cys	Ser	Pro	Phe 365	Ala	Phe	Thr
Thr	Gly 370	Met	Ile	Gln	Ile	Ile 375	Lys	Leu	Asp	Tyr	Asn 380	Leu	Asn	Gly	Val
Ile 385	Phe	Pro	Asp	Pro	Ser 390	Gly	Asp	Ser	Tyr	Thr 395	Met	Ile	Ala	Thr	Phe 400
Ser	Met	Leu	Leu	Leu 405	Asp	Gly	Leu	Ile	Tyr 410	Leu	Leu	Leu	Ala	Leu 415	Tyr
Phe	Asp	Lys	Ile 420	Leu	Pro	Tyr	Gly	Asp 425	Glu	Arg	His	Tyr	Ser 430	Pro	Leu
Phe	Phe	Leu 435	Asn	Ser	Ser	Ser	Cys 440	Phe	Gln	His	Gln	Arg 445	Thr	Asn	Ala
Lys	Val 450	Ile	Glu	Lys	Glu	Ile 455	Asp	Ala	Glu	His	Pro 460	Ser	Asp	Asp	Tyr
Phe 465	Glu	Pro	Val	Ala	Pro 470	Glu	Phe	Gln	Gly	Lys 475	Glu	Ala	Ile	Arg	Ile 480
Arg	Asn	Val	Lys	Lys 485	Glu	Tyr	Lys	Gly	Lys 490	Ser	Gly	Lys	Val	Glu 495	Ala

Phe 785	Met	Lys	Leu	Glu	Gly 790	Gln	Ser	Thr	Ile	Glu 795	Gln	Asp	Phe	Glu	Gln 800
Val	Glu	Met	Ile	Arg 805	Asp	Ser	Glu	Ser	Leu 810	Asn	Glu	Met	Glu	Leu 815	Ala
His	Ser	Ser	Phe 820	Ser	Glu	Met	Gln	Thr 825	Ala	Val	Ser	Asp	Met 830	Gly	Leu
Trp	Arg	Met 835	Gln	Val	Phe	Ala	Met 840	Ala	Arg	Leu	Arg	Phe 845	Leu	Lys	Leu
Lys	Arg 850	Gln	Thr	Lys	Val	Leu 855	Leu	Thr	Leu	Leu	Leu 860	Val	Phe	Gly	Ile
Ala 865	Ile	Phe	Pro	Leu	Ile 870	Val	Glu	Asn	Ile	Ile 875	Tyr	Ala	Met	Leu	Asn 880
Glu	Lys	Ile	Asp	Trp 885	Glu	Phe	Lys	Asn	Glu 890	Leu	Tyr	Phe	Leu	Ser 895	Pro
Gly	Gln	Leu	Pro 900	Gln	Glu	Pro	Arg	Thr 905	Ser	Leu	Leu	Ile	Ile 910	Asn	Asn
Thr	Glu	Ser 915	Asn	Ile	Glu	Asp	Phe 920	Ile	Lys	Ser	Leu	Lys 925	His	Gln	Asn
Ile 930	Leu	Leu	Glu	Val	Asp	Asp 935	Phe	Glu	Asn	Arg	Asn 940	Gly	Thr	Asp	Gly
Leu 945	Ser	Tyr	Asn	Gly	Ala 950	Ile	Ile	Val	Ser	Gly 955	Lys	Gln	Lys	Asp	Tyr 960
Arg	Phe	Ser	Val	Val 965	Cys	Asn	Thr	Lys	Arg 970	Leu	His	Cys	Phe	Pro 975	Ile
Leu	Met	Asn	Ile 980	Ile	Ser	Asn	Gly	Leu 985	Leu	Gln	Met	Phe	Asn 990	His	Thr
Gln	His	Ile 995	Arg	Ile	Glu	Ser	Ser 1000	Pro	Phe	Pro	Leu	Ser 1005	His	Ile	Gly
Leu 1010	Trp	Thr	Gly	Leu	Pro	Asp 1015	Gly	Ser	Phe	Phe 1020	Leu	Phe	Leu	Val	Leu
Cys 1025	Ser	Ile	Ser	Pro	Tyr 1030	Ile	Thr	Met	Gly	Ser 1035	Ile	Ser	Asp	Tyr	Lys 1040
Lys	Asn	Ala	Lys	Ser 1045	Gln	Leu	Trp	Ile	Ser	Gly	Leu	Tyr	Thr	Ser 1055	Ala
Tyr	Trp	Cys	Gly	Gln	Ala	Leu	Val	Asp	Val	Ser	Phe	Phe	Ile	Leu	Ile

Glu Leu Lys Gly Cys Ser Ser Val Leu Gly His Leu Gly Tyr Cys Pro
 1345 1350 1355 1360
 Gln Glu Asn Val Leu Trp Pro Met Leu Thr Leu Arg Glu His Leu Glu
 1365 1370 1375
 Val Tyr Ala Ala Val Lys Gly Leu Arg Lys Ala Asp Ala Arg Leu Ala
 1380 1385 1390
 Ile Ala Arg Leu Val Ser Ala Phe Lys Leu His Glu Gln Leu Asn Val
 1395 1400 1405
 Pro Val Gln Lys Leu Thr Ala Gly Ile Thr Arg Lys Leu Cys Phe Val
 1410 1415 1420
 Leu Ser Leu Leu Gly Asn Ser Pro Val Leu Leu Leu Asp Glu Pro Ser
 1425 1430 1435 1440
 Thr Gly Ile Asp Pro Thr Gly Gln Gln Gln Met Trp Gln Ala Ile Gln
 1445 1450 1455
 Ala Val Val Lys Asn Thr Glu Arg Gly Val Leu Leu Thr Thr His Asn
 1460 1465 1470
 Leu Ala Glu Ala Glu Ala Leu Cys Asp Arg Val Ala Ile Met Val Ser
 1475 1480 1485
 Gly Arg Leu Arg Cys Ile Gly Ser Ile Gln His Leu Lys Asn Lys Leu
 1490 1495 1500
 Gly Lys Asp Tyr Ile Leu Glu Leu Lys Val Lys Glu Thr Ser Gln Val
 1505 1510 1515 1520
 Thr Leu Val His Thr Glu Ile Leu Lys Leu Phe Pro Gln Ala Ala Gly
 1525 1530 1535
 Gln Glu Arg Tyr Ser Ser Leu Leu Thr Tyr Lys Leu Pro Val Ala Asp
 1540 1545 1550
 Val Tyr Pro Leu Ser Gln Thr Phe His Lys Leu Glu Ala Val Lys His
 1555 1560 1565
 Asn Phe Asn Leu Glu Glu Tyr Ser Leu Ser Gln Cys Thr Leu Glu Lys
 1570 1575 1580
 Val Phe Leu Glu Leu Ser Lys Glu Gln Glu Val Gly Asn Phe Asp Glu
 1585 1590 1595 1600
 Glu Ile Asp Thr Thr Met Arg Trp Lys Leu Leu Pro His Ser Asp Glu
 1605 1610 1615
 Pro

<210> 7
 <211> 1624
 <212> PRT
 <213> Homo sapiens

<400> 7
 Met Ser Lys Arg Arg Met Ser Val Gly Gln Gln Thr Trp Ala Leu Leu
 1 5 10 15
 Cys Lys Asn Cys Leu Lys Lys Trp Arg Met Lys Arg Gln Thr Leu Leu
 20 25 30
 Glu Trp Leu Phe Ser Phe Leu Leu Val Leu Phe Leu Tyr Leu Phe Phe
 35 40 45
 Ser Asn Leu His Gln Val His Asp Thr Pro Gln Met Ser Ser Met Asp
 50 55 60
 Leu Gly Arg Val Asp Ser Phe Asn Asp Thr Asn Tyr Val Ile Ala Phe
 65 70 75 80
 Ala Pro Glu Ser Lys Thr Thr Gln Glu Ile Met Asn Lys Val Ala Ser
 85 90 95
 Ala Pro Phe Leu Lys Gly Arg Thr Ile Met Gly Trp Pro Asp Glu Lys
 100 105 110
 Ser Met Asp Glu Leu Asp Leu Asn Tyr Ser Ile Asp Ala Val Arg Val
 115 120 125
 Ile Phe Thr Asp Thr Phe Ser Tyr His Leu Lys Phe Ser Trp Gly His
 130 135 140
 Arg Ile Pro Met Met Lys Glu His Arg Asp His Ser Ala His Cys Gln
 145 150 155 160
 Ala Val Asn Glu Lys Met Lys Cys Glu Gly Ser Glu Phe Trp Glu Lys
 165 170 175
 Gly Phe Val Ala Phe Gln Ala Ala Ile Asn Ala Ala Ile Ile Glu Ile
 180 185 190
 Ala Thr Asn His Ser Val Met Glu Gln Leu Met Ser Val Thr Gly Val
 195 200 205
 His Met Lys Ile Leu Pro Phe Val Ala Gln Gly Gly Val Ala Thr Asp
 210 215 220
 Phe Phe Ile Phe Phe Cys Ile Ile Ser Phe Ser Thr Phe Ile Tyr Tyr
 225 230 235 240

Val	Ser	Val	Asn	Val	Thr	Gln	Glu	Arg	Gln	Tyr	Ile	Thr	Ser	Leu	Met
				245					250					255	
Thr	Met	Met	Gly	Leu	Arg	Glu	Ser	Ala	Phe	Trp	Leu	Ser	Trp	Gly	Leu
			260					265					270		
Met	Tyr	Ala	Gly	Phe	Ile	Leu	Ile	Met	Ala	Thr	Leu	Met	Ala	Leu	Ile
		275					280					285			
Val	Lys	Ser	Ala	Gln	Ile	Val	Val	Leu	Thr	Gly	Phe	Val	Met	Val	Phe
	290					295					300				
Thr	Leu	Phe	Leu	Leu	Tyr	Gly	Leu	Ser	Leu	Ile	Thr	Leu	Ala	Phe	Leu
305					310					315					320
Met	Ser	Val	Leu	Ile	Lys	Lys	Pro	Phe	Leu	Thr	Gly	Leu	Val	Val	Phe
				325					330					335	
Leu	Leu	Ile	Val	Phe	Trp	Gly	Ile	Leu	Gly	Phe	Pro	Ala	Leu	Tyr	Thr
			340					345					350		
His	Leu	Pro	Ala	Phe	Leu	Glu	Trp	Thr	Leu	Cys	Leu	Leu	Ser	Pro	Phe
		355					360					365			
Ala	Phe	Thr	Val	Gly	Met	Ala	Gln	Leu	Ile	His	Leu	Asp	Tyr	Asp	Val
	370					375					380				
Asn	Ser	Asn	Ala	His	Leu	Asp	Ser	Ser	Gln	Asn	Pro	Tyr	Leu	Ile	Ile
385					390					395					400
Ala	Thr	Leu	Phe	Met	Leu	Val	Phe	Asp	Thr	Leu	Leu	Tyr	Leu	Val	Leu
				405					410					415	
Thr	Leu	Tyr	Phe	Asp	Lys	Ile	Leu	Pro	Ala	Glu	Tyr	Gly	His	Arg	Cys
			420					425					430		
Ser	Pro	Leu	Phe	Phe	Leu	Lys	Ser	Cys	Phe	Trp	Phe	Gln	His	Gly	Arg
		435					440					445			
Ala	Asn	His	Val	Val	Leu	Glu	Asn	Glu	Thr	Asp	Ser	Asp	Pro	Thr	Pro
	450					455					460				
Asn	Asp	Cys	Phe	Glu	Pro	Val	Ser	Pro	Glu	Phe	Cys	Gly	Lys	Glu	Ala
465					470					475					480
Ile	Arg	Ile	Lys	Asn	Leu	Lys	Lys	Glu	Tyr	Ala	Gly	Lys	Cys	Glu	Arg
				485					490					495	
Val	Glu	Ala	Leu	Lys	Gly	Val	Val	Phe	Asp	Ile	Tyr	Glu	Gly	Gln	Ile
			500					505					510		
Thr	Ala	Leu	Leu	Gly	His	Ser	Gly	Ala	Gly	Lys	Thr	Thr	Leu	Leu	Asn
								30							

Asp Ile Gly Ile Trp 805 Gly Gln Leu Gln Thr 810 Asp Gly Ala Lys Asp 815 Ile
 Gly Ser Leu Val 820 Glu Leu Glu Gln Val 825 Leu Ser Ser Phe His 830 Glu Thr
 Arg Lys Thr 835 Ile Ser Gly Val Ala 840 Leu Trp Arg Gln Gln 845 Val Cys Ala
 Ile Ala Lys Val Arg Phe Leu 855 Lys Leu Lys Lys Glu 860 Arg Lys Ser Leu
 Trp 865 Thr Ile Leu Leu Leu 870 Phe Gly Ile Ser Phe 875 Ile Pro Gln Leu Leu 880
 Glu His Leu Phe Tyr 885 Glu Ser Tyr Gln Lys 890 Ser Tyr Pro Trp Glu 895 Leu
 Ser Pro Asn Thr 900 Tyr Phe Leu Ser Pro 905 Gly Gln Gln Pro Gln 910 Asp Pro
 Leu Thr His 915 Leu Leu Val Ile Asn 920 Lys Thr Gly Ser Thr 925 Ile Asp Asn
 Phe Leu His Ser Leu Arg Arg 935 Gln Asn Ile Ala Ile 940 Glu Val Asp Ala
 Phe 945 Gly Thr Arg Asn Gly 950 Thr Asp Asp Pro Ser 955 Tyr Asn Gly Ala Ile 960
 Ile Val Ser Gly Asp 965 Glu Lys Asp His Arg 970 Phe Ser Ile Ala Cys 975 Asn
 Thr Lys Arg Leu 980 Asn Cys Phe Pro Val 985 Leu Leu Asp Val Ile 990 Ser Asn
 Gly Leu Leu Gly Ile Phe Asn Ser 1000 Ser Glu His Ile Gln 1005 Thr Asp Arg
 Ser Thr 1010 Phe Phe Glu Glu 1015 Met Asp Tyr Glu Tyr 1020 Gly Tyr Arg Ser
 Asn Thr 1025 Phe Phe Trp Ile 1030 Pro Met Ala Ala 1035 Ser Phe Thr Pro Tyr Ile 1040
 Ala Met Ser Ser Ile 1045 Gly Asp Tyr Lys Lys 1050 Lys Ala His Ser Gln Leu 1055
 Arg Ile Ser Gly 1060 Leu Tyr Pro Ser Ala Tyr Trp Phe Gly Gln 1070 Ala Leu
 Val Asp Val 1075 Ser Leu Tyr Phe Leu 1080 Ile Leu Leu Leu Met 1085 Gln Ile Met

Asp Tyr Ile Phe Ser Pro Glu Glu Ile Ile Phe Ile Ile Gln Asn Leu
 1090 1095 1100
 Leu Ile Gln Ile Leu Cys Ser Ile Gly Tyr Val Ser Ser Leu Val Phe
 1105 1110 1115 1120
 Leu Thr Tyr Val Ile Ser Phe Ile Phe Arg Asn Gly Arg Lys Asn Ser
 1125 1130 1135
 Gly Ile Trp Ser Phe Phe Phe Leu Ile Val Val Ile Phe Ser Ile Val
 1140 1145 1150
 Ala Thr Asp Leu Asn Glu Tyr Gly Phe Leu Gly Leu Phe Phe Gly Thr
 1155 1160 1165
 Met Leu Ile Pro Pro Phe Thr Leu Ile Gly Ser Leu Phe Ile Phe Ser
 1170 1175 1180
 Glu Ile Ser Pro Asp Ser Met Asp Tyr Leu Gly Ala Ser Glu Ser Glu
 1185 1190 1195 1200
 Ile Val Tyr Leu Ala Leu Leu Ile Pro Tyr Leu His Phe Leu Ile Phe
 1205 1210 1215
 Leu Phe Ile Leu Arg Cys Leu Glu Met Asn Cys Arg Lys Lys Leu Met
 1220 1225 1230
 Arg Lys Asp Pro Val Phe Arg Ile Ser Pro Arg Ser Asn Ala Ile Phe
 1235 1240 1245
 Pro Asn Pro Glu Glu Pro Glu Gly Glu Glu Glu Asp Ile Gln Met Glu
 1250 1255 1260
 Arg Met Arg Thr Val Asn Ala Met Ala Val Arg Asp Phe Asp Glu Thr
 1265 1270 1275 1280
 Pro Val Ile Ile Ala Ser Cys Leu Arg Lys Glu Tyr Ala Gly Lys Lys
 1285 1290 1295
 Lys Asn Cys Phe Ser Lys Arg Lys Lys Thr Ile Ala Thr Arg Asn Val
 1300 1305 1310
 Ser Phe Cys Val Lys Lys Gly Glu Val Ile Gly Leu Leu Gly His Asn
 1315 1320 1325
 Gly Ala Gly Lys Ser Thr Thr Ile Lys Met Ile Thr Gly Asp Thr Lys
 1330 1335 1340
 Pro Thr Ala Gly Gln Val Ile Leu Lys Gly Ser Gly Gly Gly Glu Pro
 1345 1350 1355 1360
 Leu Gly Phe Leu Gly Tyr Cys Pro Gln Glu Asn Ala Leu Trp Pro Asn
 33

<211> 1543
 <212> PRT
 <213> Homo sapiens

<400> 8

Met	Asn	Lys	Met	Ala	Leu	Ala	Ser	Phe	Met	Lys	Gly	Arg	Thr	Val	Ile
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Gly	Thr	Pro	Asp	Glu	Glu	Thr	Met	Asp	Ile	Glu	Leu	Pro	Lys	Lys	Tyr
			20					25					30		
His	Glu	Met	Val	Gly	Val	Ile	Phe	Ser	Asp	Thr	Phe	Ser	Tyr	Arg	Leu
		35					40					45			
Lys	Phe	Asn	Trp	Gly	Tyr	Arg	Ile	Pro	Val	Ile	Lys	Glu	His	Ser	Glu
	50					55					60				
Tyr	Thr	Glu	His	Cys	Trp	Ala	Met	His	Gly	Glu	Ile	Phe	Cys	Tyr	Leu
65					70					75					80
Ala	Lys	Tyr	Trp	Leu	Lys	Gly	Phe	Val	Ala	Phe	Gln	Ala	Ala	Ile	Asn
				85					90					95	
Ala	Ala	Ile	Ile	Glu	Val	Thr	Thr	Asn	His	Ser	Val	Met	Glu	Glu	Leu
			100					105					110		
Thr	Ser	Val	Ile	Gly	Ile	Asn	Met	Lys	Ile	Pro	Pro	Phe	Ile	Ser	Lys
		115					120					125			
Gly	Glu	Ile	Met	Asn	Glu	Trp	Phe	His	Phe	Thr	Cys	Leu	Val	Ser	Phe
	130					135					140				
Ser	Ser	Phe	Ile	Tyr	Phe	Ala	Ser	Leu	Asn	Val	Ala	Arg	Glu	Arg	Gly
145					150					155					160
Lys	Phe	Lys	Lys	Leu	Met	Thr	Val	Met	Gly	Leu	Arg	Glu	Ser	Ala	Phe
				165					170					175	
Trp	Leu	Ser	Trp	Xaa	Leu	Thr	Tyr	Ile	Cys	Phe	Ile	Phe	Ile	Met	Ser
			180					185					190		
Ile	Phe	Met	Ala	Leu	Val	Ile	Thr	Ser	Ile	Ser	Ile	Val	Phe	His	Thr
		195					200					205			
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	210					215					220				
Ile	Ala	Leu	Ala	Phe	Leu	Met	Ser	Val	Leu	Ile	Arg	Lys	Pro	Met	Leu
225					230					235					240
Ala	Gly	Leu	Ala	Gly	Phe	Leu	Phe	Thr	Val	Phe	Trp	Gly	Cys	Leu	Gly
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Phe Thr Val Leu Tyr Arg Gln Leu Pro Leu Ser Leu Gly Trp Val Leu
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 Ser Leu Leu Ser Pro Phe Ala Phe Thr Ala Gly Met Ala Gln Val Thr
 275 280 285
 His Leu Asp Asn Tyr Leu Ser Gly Val Ile Phe Pro Asp Pro Ser Gly
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 Asp Ser Tyr Lys Met Ile Ala Thr Phe Phe Ile Leu Ala Phe Asp Thr
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 Leu Phe Tyr Leu Ile Phe Thr Leu Tyr Phe Glu Arg Val Leu Pro Asp
 325 330 335
 Lys Asp Gly His Gly Asp Ser Pro Leu Phe Phe Leu Lys Ser Ser Phe
 340 345 350
 Trp Ser Lys His Gln Asn Thr His His Glu Ile Phe Glu Asn Glu Ile
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 Asn Pro Glu His Ser Ser Asp Asp Ser Phe Glu Pro Val Ser Pro Glu
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 Phe His Gly Lys Glu Ala Ile Arg Ile Arg Asn Val Ile Lys Glu Tyr
 385 390 395 400
 Asn Gly Lys Thr Gly Lys Val Glu Ala Leu Gln Gly Ile Phe Phe Asp
 405 410 415
 Ile Tyr Glu Gly Gln Ile Thr Ala Ile Leu Gly His Asn Gly Ala Gly
 420 425 430
 Lys Ser Thr Leu Leu Asn Ile Leu Ser Gly Leu Ser Val Ser Thr Glu
 435 440 445
 Gly Ser Ala Thr Ile Tyr Asn Thr Gln Leu Ser Glu Ile Thr Asp Met
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 Glu Glu Ile Arg Lys Asn Ile Gly Phe Cys Pro Gln Phe Asn Phe Gln
 465 470 475 480
 Phe Asp Phe Leu Thr Val Arg Glu Asn Leu Arg Val Phe Ala Lys Ile
 485 490 495
 Lys Gly Ile Gln Pro Lys Glu Val Glu Gln Glu Val Lys Arg Ile Ile
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 Ser Gly Gly Gln Lys Arg Lys Leu Thr Leu Gly Ile Ala Ile Leu Gly
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	850					855					860				
Ser	Tyr	Asn	Gly	Ala	Ile	Ile	Val	Ser	Gly	Asp	Gln	Lys	Asp	Tyr	Arg
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Phe	Ser	Val	Ala	Cys	Asn	Thr	Lys	Lys	Leu	Asn	Cys	Phe	Pro	Val	Leu
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Met	Gly	Ile	Val	Ser	Asn	Ala	Leu	Met	Gly	Ile	Phe	Asn	Phe	Thr	Glu
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Cys	Val	Ser	Pro	Phe	Ile	Gly	Met	Ser	Ser	Ile	Ser	Asp	Tyr	Lys	Lys
945					950					955					960
Asn	Val	Gln	Ser	Gln	Leu	Trp	Ile	Ser	Gly	Leu	Trp	Pro	Ser	Ala	Tyr
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			980					985					990		
Phe	Ser	Ile	His	Leu	Ile	Tyr	Tyr	Phe	Ile	Phe	Leu	Gly	Phe	Gln	Leu
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			1045					1050					1055		
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	1075					1080					1085				
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	1090				1095						1100				

Asp Asn Arg Ile Asn Glu Val Asn Lys Thr Ile Leu Leu Thr Thr Leu
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 Ile Pro Tyr Leu Gln Ser Val Ile Phe Leu Phe Val Ile Arg Cys Leu
 1125 1130 1135
 Glu Met Lys Tyr Gly Asn Glu Ile Met Asn Lys Asp Pro Val Phe Arg
 1140 1145 1150
 Ile Ser Pro Arg Ser Arg Glu Thr His Pro Asn Pro Glu Glu Pro Glu
 1155 1160 1165
 Glu Glu Asp Glu Asp Val Gln Ala Glu Arg Val Gln Ala Ala Asn Ala
 1170 1175 1180
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 Leu His Lys Glu Tyr Tyr Glu Thr Lys Lys Ser Cys Phe Ser Thr Arg
 1205 1210 1215
 Lys Lys Lys Ile Ala Ile Arg Asn Val Ser Phe Cys Val Lys Lys Gly
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 Glu Val Leu Gly Leu Leu Gly His Asn Gly Ala Gly Lys Ser Thr Ser
 1235 1240 1245
 Ile Lys Met Ile Thr Gly Cys Thr Lys Pro Thr Ala Gly Val Val Val
 1250 1255 1260
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 1285 1290 1295
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aaaggtctca ggaaagggga cgcaatgatc gccatcacac g 161

<210> 80
<211> 76
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<210> 81
<211> 95
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<213> Homo sapiens

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accgggatgg accccgaggg gcagcagcaa atgtg 95

<210> 82
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 agaggtggta caaaatgcat ttgaaactca tgcaataatt atcctcagta gtattttctta 240
 cagtgaagaca acaggcaatg tcagtgaggg cgatcgtagg gcataagcct aagccataacc 300
 atgcagcctt tgtgccagca accaaatccc atgtttccta ctgtgttaag tttaaaaatg 360
 catttattat agaattgtct acattttctga ggatgtcatg gagaatgctt aattttcttt 420
 ctctgaactt caaaatatta aatattttct tatttttttg attaaagtat aaattaagac 480
 accctattga cttccgggta aggggagtc aattgattacc cagcagcaca gtatttgctt 540
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 <213> Homo sapiens

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 taacatgtaa ataggcatta atttttgaga aatagaaatg tttatcctta atgtattttt 180
 aatttgctaa cattgatttt ttattttctt tcctgaaata gcttattttcc taaaatgaaa 240
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<210> 88
<211> 280
<212> ADN
<213> Homo sapiens

<400> 88
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aactggacaa ggagaaaaac atagggaaaa aaccaacaga atttgttggc atgttctaca 120
cacagaccat ggctttttcag aagccaagct gaataaaaaac agtttttaaaa gaggcaacca 180
tttgtagagg agtccttgaa ggattcttca ttgttttctt ggacaaaaag agaccagtgg 240
atccaagtgc ttcaaatact tctctcttat tttcttaact 280

<210> 89
<211> 141
<212> ADN
<213> Homo sapiens

<400> 89
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gaataaaaag agagtttatt g 141

<210> 90
<211> 205
<212> ADN
<213> Homo sapiens

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gctacccgtt ttcctgaaca acctcctaaa gtcctgggaa gcgtggatca gttaaatgac 120
tctggcctgg tagtggcata tacaccagtc agtaacataa cacaaaggat aatgaataag 180
atggccttgg cttcctttat gaaag 205

<210> 91
<211> 165
<212> ADN

<213> Homo sapiens

<400> 91

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accatgaaat ggtgggagtt atatttagtg atactttctc atatcgctg aagtttaatt 120
ggggatatag aatcccagtt ataaaggagc actctgaata cacag 165

<210> 92

<211> 104

<212> ADN

<213> Homo sapiens

<400> 92

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<210> 93

<211> 227

<212> ADN

<213> Homo sapiens

<400> 93

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ataccacctt tcatttctaa gggagaaatt atgaatgaat ggtttcattt tacttgctta 120
gtttctttct cttcttttat atactttgca tcattaaatg ttgcaaggga aagaggaaaa 180
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<210> 94

<211> 142

<212> ADN

<213> Homo sapiens

<400> 94

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ggtcataaca tcaatctcaa ttgtatttca tactggcttc atgggtgatat tcacactcta 120
tagcttatat ggcctttctt tg 142

<210> 95
<211> 186
<212> ADN
<213> Homo sapiens

<400> 95
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ggatttctct tcactgtatt ttggggatgt ctgggattca ctgtgttata cagacaactt 120
cctttatctt tgggatgggt attaagtctt cttagccctt ttgccttcac tgctggaatg 180
gcccag 186

<210> 96
<211> 148
<212> ADN
<213> Homo sapiens

<400> 96
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acattatatt ttgagcgagt tttacctg 148

<210> 97
<211> 169
<212> ADN
<213> Homo sapiens

<400> 97
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attcttttga accggtgtct ccagaattcc atggaaaaga agccataag 169

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<211> 59
<212> ADN
<213> Homo sapiens

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<210> 99
 <211> 111
 <212> ADN
 <213> Homo sapiens

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 <213> Homo sapiens

<400> 100
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 agaataattgg attttgtcca cagttcaatt ttcaatttga cttcctcact gtgagagaaa 120
 acctcagggg atttgctaaa ataaaaggga ttcagccaaa ggaagtggaa caagag 176

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<210> 102
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 gaggctgaca tcttggctg 139

<210> 107
<211> 167
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aatcccgaag acgcctctta ccagcctggt aatcgttaat aatacag 167

<210> 108
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ctggtgacca gaag 134

<210> 109
<211> 138
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agcatttcac tttctcgt 138

<210> 110
<211> 108
<212> ADN
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aactgcgttt ctctttttat cggcatgagc agcatcagcg attataaa 108

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aatgaaataa tgaataaaga cccagttttc ag 92

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<211> 121
<212> ADN
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g 121

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<400> 117
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cgcagttaat attttcttta gccaaacttat attcaatgta ttttttatgg atcctttttc 720
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19

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to "cat" see "foot"

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